United States

Department of the Interior

Aviation Safety Review

Fiscal Year 99

Published
By

United States Department of the Interior
Office of the Secretary
Office of Aircraft Services

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Letter from the Director

In FY 99 the Department of the Interior flew 74,424.7 hours, at a cost of nearly $53.8 million. Despite a demanding fire season, Interior recorded only four statistically accountable aircraft accidents at an annual rate of 5.37 per 100,000 flight hours. This represents a significant improvement compared to last year's accident rate of 9.95. During the past twenty-five years Interior has experienced annual accident rates as high as 18.87 per 100,000 flight hours (FY 75) and as low as 3.73 per 100,000 flight hours (FY 85).

One additional accident occurred within Interior, which was associated with an end product contract. Flight hours for end product contracts are not captured by the Office of Aircraft Services and therefore not included in this year's accident rate.

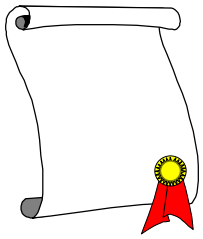
The National Transportation Safety Board investigated all four of our accidents with assistance from the Office of Aircraft Services. Mishap investigations often reveal important information that may improve working conditions or mishap prevention measures. This year, in cooperation with the National Transportation Safety Board, key issues associated with each accident have been identified and are included in this report. These issues are based on facts discovered during the investigations and may or may not be included in the final reports. We feel this information is important and will provide our aviation community with timely information necessary to help prevent future accidents.

We hope you will find the information in this safety review useful. Comments or suggestions may be directed to the OAS Aviation Safety Office at (208) 387-5800.

I want to express my thanks to all personnel throughout the Department of the Interior for your efforts in enabling the Department of the Interior to accomplish our aviation mission in such an outstanding manner. In particular, I would like to recognize those individuals, identified on page ii of this report that received Aviation Safety Awards during FY 99.

I wish everyone a safe and successful FY 00.

Elmer Hurd
Director, Office of Aircraft Services



Interior Aviation Safety Award Recipients - FY 99

In response to our request for Safety Award Nominees, the following DOI personnel were recognized as follows:

Award for Significant Contributions to Aviation Safety

Greg Gall - BLM
Ronald J. Nagata, Sr. - NPS
Robert R. McAlpin - BLM

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Award for In-Flight Actions

Laura Johnson - NPS
William W. Larned - FWS

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Award of Honor

Rodney J. King - FWS
David Sowards - FWS

Award of Excellence

James P. Bredy - FWS
D. Anthony Chatto - FWS
Michael T. Hinkes - FWS
John I. Hodges - FWS
Walter E. Soroka - FWS
Michael A. Spindler - FWS

Award of Distinction

Paul A. Liedberg - FWS
Steven J. Rossiter -BIA
William M. Tipton - NPS

******

Award of Merit

Thomas P. O'Hara - NPS
Michael L. Wade - FWS

U.S. Department of the Interior

Aviation Safety Review FY 99

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Section I

FY 99 Aviation Accidents

In FY 99 the Department of the Interior flew 74,424.7 hours, recording only four statistically accountable aircraft accidents at an annual rate of 5.37 per 100,000 flight hours. One additional accident occurred within Interior, which was associated with an end product contract. Flight hours for end product contracts are not captured by the Office of Aircraft Services and therefore not included in this year's accident rate. There were two fatalities.

The National Transportation Safety Board investigated all four of our accidents with assistance from the Office of Aircraft Services. Mishap investigations often reveal important information that may improve working conditions or mishap prevention measures. This year, in cooperation with the National Transportation Safety Board, key issues associated with each accident have been identified and are included in this report. These issues are based on facts discovered during the investigations and may or may not be included in the final reports. We feel this information is important and will provide our aviation community with timely information necessary to help prevent future accidents.

The Office of Aircraft Services also assisted the National Transportation Safety Board with an accident investigation near Yellow Pine, Idaho. While this aircraft was procured using an OAS contract, it was working for Idaho’s Department of Fish and Game at the time of the accident. The accident was not charged to the Department of the Interior. There are several issues associated with this accident, which have applications to Interior. A summary of that accident has been included in this report for informational purposes only.

The five Interior accidents involved four airplanes and one helicopter. Pages 2 through 13 provide information about each of the mishaps.

AIRCRAFT ACCIDENT
99-9F01-C-LLM

AIRCRAFT DATA: Air Tractor AT-400	**DATE**: October 19, 1998
BUREAU: Bureau of Land Management	**LOCATION**: Aztec, NM
INJURIES: Minor -1	**SOURCE**: Contract
Accident investigation costs captured by OAS through September 30, 1999: None	

Narrative: On October 19, 1998, approximately 1300 Mountain Daylight Time, an Air Tractor AT-400, N73080, operated by J.R. Davis Flying Service under contract to the U.S. Bureau of Land Management, was substantially damaged during a forced landing near Aztec, New Mexico. The airline transport pilot, the sole occupant aboard, was not injured. Visual meteorological conditions prevailed, and no flight plan had been filed for the aerial application flight being conducted under

Title 14 CFR Part 137. The flight originated at Aztec, New Mexico, at approximately 1230. According to the pilot's accident report, he had flown the aerial application flight for 12 minutes when he began to "get oil on the windshield, and began losing oil pressure." A precautionary landing ensued. During the landing roll, the right wing struck a tree. The airplane spun around and slid sideways, collapsing the left landing gear. The left wing was also "wrinkled." The pilot said he found that the oil dipstick had not been secured.

Key Issues	Discussion
• Preflight Inspection	Pilot reported the oil dipstick was not secured.
• Flight Plan	No flight plan had been filed.

Probable Cause: The National Transportation Safety Board determines that the probable cause of this accident was the pilot's inadequate preflight inspection of the airplane.

Contributing Factors: Factors in the accident were the unsecured oil dipstick, the loss of engine oil pressure necessitating a precautionary landing on unsuitable terrain, and the collision with the tree.

AIRCRAFT ACCIDENT
99-9F02-A-FWS

AIRCRAFT DATA: Cessna TR182	**DATE**: November 6, 1998
BUREAU: U.S. Fish and Wildlife Service	**LOCATION:** Desert Aire, WA
INJURIES: Fatalities - 2 Serious - 1	**SOURCE:** Rental
Accident investigation costs captured by OAS through September 30, 1999: $8,878.76	

Narrative: On November 6, 1998, approximately 1225 Pacific Standard Time, a Cessna TR182, N756YE, operated by Kennewick Aircraft Services Inc. of Kennewick, Washington under contract to the U.S. Fish & Wildlife Service as a public-use waterfowl survey flight, struck power lines across the Columbia River near Desert Aire, Washington, and subsequently crashed and sank into the river. The airplane sank to the river bottom (approximately 15 feet deep), the commercial pilot-in-command of the aircraft was able to escape the aircraft and was rescued by a boat on the

river, but sustained serious injuries in the accident. Two U.S. Fish & Wildlife Service employees aboard the aircraft, who were acting as observers for the waterfowl survey, did not escape the submerged aircraft and were fatally injured. The flight departed Vista Field, Kennewick, Washington, and was to have been a local flight. Visual meteorological conditions were reported at the Hanford, Washington, weather observation station (approximately 9 nautical miles southeast of the accident site) at 1150. The airplane was not on a flight plan. The operator possessed an FAA waiver from the minimum altitude requirements of 14 CFR 91.119(c). This waiver authorized the pilot to operate at altitudes below 500 feet above ground level (AGL) on aerial survey flights, provided aircraft were not operated closer than 500 feet to persons on the surface. Witnesses reported that at the time of the accident, the airplane was flying eastbound (downstream) at low altitude. The airplane struck the power lines which cross the river between the Priest Rapids Dam and the Vernita Bridge (where Washington State highway 24 crosses over the river), approximately 2 miles west of the Vernita Bridge. There are two groups of transmission lines which cross over the river at this point, a westernmost (upstream) group mounted on towers rising to approximately 194 feet AGL and an easternmost (downstream) group on taller towers. The transmission line support towers on each riverbank are depicted as group obstructions on the Seattle Sectional Aeronautical Chart, with the chart depicting the towers as being 280 feet AGL. The airplane struck and severed ground/support cables running between the tops of the westernmost group of towers. The FAA on-scene investigator reported that the cables the aircraft struck were 5/8 inch in diameter (the high-tension cables, mounted on supports below the tops of the towers, are approximately 1 inch in diameter.) In an initial interview with the FAA investigator, the pilot told the FAA investigator that at the time he struck the power lines, the airplane was flying due east, climbing at 300 feet per minute, and was at an airspeed of 80 knots. The FAA investigator reported that the pilot told him the airplane was operating normally at the time of the wire strike, and that he was using the towers as a visual reference to indicate how high he was above the power lines. Sky conditions reported in the 1150 Hanford weather observations were: few clouds (up to 2/8 sky cover) at 800 feet; scattered clouds at 25,000 feet; and visibility 15 statute miles.

Key Issues	**Discussion**
• Flight Plan and Flight Following	No flight plan or flight following established.
• Personal Protective Equipment	Personal Floatation Devices (PFDs) not used.
• Minimum Altitudes	Minimum 500' clearance from persons, vehicles, vessels, and structures (including wires) not maintained.
• Mishap Reporting	Accident was not reported in accordance with the Aircraft Rental Agreement. Contact names and phone numbers in Pre-Accident Plan were incorrect.

The accident is under investigation by the NTSB; preliminary information is subject to change.

AIRCRAFT ACCIDENT
99-9E01-O-PAS

AIRCRAFT DATA: Supercub PA-18	**DATE**: February 3, 1999
BUREAU: Office of Aircraft Services	**LOCATION**: Anchorage, AK
INJURIES: None	**SOURCE**: Fleet
Accident investigation costs captured by OAS through September 30, 1999: $4,515.31	

Narrative: On February 3, 1999, about 1030 Alaska Standard Time, a ski equipped Piper PA-18-150 airplane, N7875D, sustained substantial damage while taxiing at Lake Hood, Anchorage, Alaska. The airplane was being operated as a visual flight rules (VFR) local area flight when the accident occurred. The airplane was operated by the U.S. Department of the Interior, on a public use mission. The solo airline transport pilot was not injured. Visual meteorological conditions prevailed, and VFR company flight following procedures were in effect. In his written statement

to the National Transportation Safety Board, the pilot reported that he was returning to a maintenance vendor's hangar after completing a maintenance operational check flight. He said that while taxiing on an ice covered parking area, he applied power to taxi up a small incline. He said that as the airplane's skis went over the top of the incline, he closed the throttle, and reached for mixture control cut off. He noted that his sleeve caught on the throttle control, advancing it to the open position. He said that he was unable to stop the airplane, and the left wing struck a parked maintenance tug. The left wing sustained substantial damage. The pilot noted that there were no pre-accident mechanical anomalies with the airplane.

Key Issues	Discussion
• Confined Space/Margin for Error	The pilot said that given the parking and surface conditions, this was a marginal area for operations on skis. With the inadvertent addition of power, he was unable to stop safely in the space available.

The accident is under investigation by the NTSB; preliminary information is subject to change.

AIRCRAFT ACCIDENT
99-9F03-N-IFG

AIRCRAFT DATA: Hiller Soloy	**DATE**: February 28, 1999
BUREAU: Idaho Fish and Game Department	**LOCATION**: Yellow Pine, ID
INJURIES: None	**SOURCE**: Contract (MOU)
Accident investigation costs captured by OAS through September 30, 1999: $2,627.27	

Narrative: On February 28, 1999, about 1330 Mountain Standard Time, a Hiller UH-12E, N2239, registered to and operated by Valley Helicopter Service, was substantially damaged after it collided with terrain while landing at Taylor Ranch airstrip, located 28 nautical miles northeast of Yellow Pine, Idaho. A company visual flight rules (VFR) flight plan was filed for the 14 CFR 135 aerial observation flight. The commercial pilot and his two passengers were uninjured. The flight originated from Taylor Ranch approximately ten minutes prior to the accident. The operator was

contracted by the Idaho Department of Fish and Game, to survey for elk in the Frank Church Wilderness Area. The pilot, accompanied by two observers, departed the airport for the second surveillance flight of the day. Shortly after departure, the pilot was contacted by a ground crew member and informed that during the departure, a 55-gallon fuel barrel was knocked over. The pilot elected to return to the airport to inspect the helicopter for possible damage. The pilot made a normal approach to the airport and was established in a hover taxi, about 20 feet AGL, when the helicopter suddenly began to descend. The pilot stated he pulled full up-collective, however the helicopter continued to descend and impacted terrain in a slightly nose-low attitude. After contacting the ground, the pilot released the collective and the main rotor blades struck and severed the tail boom. At the time of the accident, the helicopter was operating near maximum gross weight limits at an elevation of 3,835 feet mean sea level (MSL). The pilot stated the engine was producing rated power and there were no indications of a powerplant failure. The weather at the accident site, as reported by the pilot, was 50 degrees Fahrenheit, winds calm, and a visibility of 15 miles. The main cabin area was intact, but sustained substantial impact damage. The left skid was partially collapsed. The tail boom was severed and leading edge damage was noted to the main rotor blades. Control continuity was maintained from the cyclic to the cyclic pylon assembly and from the collective to the control rotor assembly. Four bolts that secure the ballast plate to the rotor assembly were found fractured. The assembly was removed and shipped to the NTSB materials lab for inspection. A metallurgist from the lab reported that the all four bolts displayed features that are consistent with overstress separation.

Key Issues	**Discussion**
• Engine Performance	The pilot stated that the engine was producing rated power and there were no indications of a powerplant failure. The aircraft was operating near the maximum allowable gross weight at an elevation of 3835 feet MSL at the time of the accident. The wind was reported as calm.
• Survival Factors	One of the passengers reported the main rotor stabilizer entered the cockpit through the bubble canopy and struck the base of the pilot's seat narrowly missing the pilot and passenger. The passenger also reported that even the smallest articles, when unsecured in the cockpit, become missiles during a hard landing. Flight helmets provide protection from injury as well as communication during inflight emergencies.
• Flight Following	Flight following was cancelled just prior to the accident because of anticipated poor radio communications on the ground.

The accident is under investigation by the NTSB; preliminary information is subject to change.

AIRCRAFT ACCIDENT
99-9E02-C-LLM

AIRCRAFT DATA: Bell 206B-III	**DATE:** July 8, 1999
BUREAU: Bureau of Land Management	**LOCATION:** Deadhorse, AK
INJURIES: None	**SOURCE:** Contract
Accident investigation costs captured by OAS through September 30, 1999: $5,134.99	

Narrative: On July 8, 1999, about 1230 Alaska Daylight Time, a Bell 206B-III helicopter, N47122, sustained substantial damage during engine start-up, about 75 miles southwest of Deadhorse, Alaska. The helicopter was being operated as a visual flight rules (VFR) U.S. Government flight by the U.S Department of Interior, Bureau of Land Management, Fairbanks, Alaska, when the accident occurred. The helicopter, provided by Tundra Copters Inc.,

Fairbanks, Alaska, was an on-demand 14 CFR Part 135 flight. The certificated commercial pilot, and the three passengers, were not injured. Visual meteorological conditions prevailed. Company VFR flight following procedures were in effect. During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on July 8, 1999, the Director of Operations for Tundra Copters Inc. reported the pilot loaded his passengers into the helicopter at a remote biological survey site. The pilot then began an engine start, but a main rotor blade tiedown strap was still attached to one of the rotor blades. As the rotor blades began to turn, the strap struck the helicopter's vertical stabilizer. The helicopter received damage to the tail boom, and the stabilizer.

Key Issues	**Discussion**
• Situational Awareness	Break in habit pattern, resulting in failure to ensure that main rotor tiedown was properly removed. Many pilots set main rotor (2 bladed) at the 3:00/9:00 position and check during pre-start. Crew/passengers be vigilant.
• Preflight Inspection	Inadequate preflight inspection of the helicopter.

The accident is under investigation by the NTSB; preliminary information is subject to change.

AIRCRAFT ACCIDENT
99-9F04-C-LLM

AIRCRAFT DATA: Air Tractor AT-802A	**DATE:** August 19, 1999
BUREAU: Bureau of Land Management	**LOCATION:** Elko, NV
INJURIES: None	**SOURCE:** Contract
Accident investigation costs captured by OAS through September 30, 1999: $6,435.64	

Narrative: On August 19, 1999, at 1426 hours Pacific Daylight Time, an Air Tractor AT-802A, N9190G, collided with a tree during a fire fighting aerial retardant application near Elko, Nevada. The aircraft was operated as a public-use aircraft under contract to the U.S. Department of the Interior, Bureau of Land Management (BLM), for wildfire suppression operations. Visual meteorological conditions prevailed for the local area aerial application operation. The aircraft

sustained substantial damage. The commercial pilot, the sole occupant, was not inured. The flight originated about 1400 hours at the Elko airport on the day of the accident and was responding to a wildfire on BLM land. The pilot reported that he was following a larger aircraft on a fire application run. He successfully dropped half his retardant load on the fire and went around for another run. On the second pass, the pilot stated the aircraft encountered a strong downdraft as it neared the release point and the pilot recovered at a low altitude. During this process, the left outer wing collided with the top of a juniper tree. The pilot returned to Elko and landed. The outboard four feet of the wing leading edge was crushed aft and sustained rib damage.

Key Issues	**Discussion**
• Terrain Clearance	The pilot failed to maintain 40 foot terrain clearance as required by contract.
• Oversight	There were no lead planes or air attack in the immediate vicinity to provide oversight and assistance during this drop.

The accident is under investigation by the NTSB; preliminary information is subject to change.

Section II

FY 97 & FY 98 Aviation Accidents - Follow-up

At the time the Annual Safety Review is published each year many accidents have not yet been finalized by the National Transportation Safety Board (NTSB). To complete the information flow, the following material pertains to accidents presented in the FY 97 & FY 98 Aviation Safety Review.

AIRCRAFT ACCIDENT
97-7F01-C-BIA

AIRCRAFT DATA: Beechcraft BE-55	**DATE**: June 3, 1997
BUREAU: Bureau of Indian Affairs	**LOCATION**: San Carlos, AZ
INJURIES: Fatal - 2	**SOURCE**: Contract

Narrative: The mission was flown using a contract aircraft to conduct a routine fire reconnaissance patrol of the San Carlos Indian Reservation, Arizona. Visual meteorological conditions prevailed. The aircraft had previously been in contact with the San Carlos Dispatch and was giving 15-minute position reports. A fire tower look-out reported seeing a column of black smoke rising from the ground. A helicopter was dispatched to determine the source of the smoke. The helicopter crew discovered the downed aircraft. The aircraft was destroyed. The pilot and observer were fatally injured.

Probable Cause: The National Transportation Safety Board determines that the probable cause of this accident was the pilot's failure to maintain an adequate airspeed while maneuvering, which led to an inadvertent stall/spin.

Contributing Factors: None noted.

AIRCRAFT ACCIDENT
98-8F01-A-LBR

AIRCRAFT DATA: Cessna 208B Caravan	**DATE**: October 8, 1997
BUREAU: Bureau of Reclamation	**LOCATION**: Montrose, CO
INJURIES: Fatal - 9	**SOURCE**: Rental

Narrative: On October 8, 1997, at about 0723 Mountain Daylight Time, N12022, a Cessna 208B, lost control during climb out and collided with terrain at the 9900 feet level of the Uncompahgre Plateau about 23 nautical miles southwest of Montrose, Colorado. The certificated airline transport pilot, and the eight passengers were fatally injured. The flight was a 14 CFR Part 135 on-demand air charter for eight employees of the Bureau of Reclamation (U.S. Department of the Interior) from Montrose, Colorado to Page, Arizona. The registered owner of the airplane was Scenic Airlines Inc. of Page, Arizona. Visual meteorological conditions prevailed at the point of departure. The flight departed Montrose Airport (elevation 5759 feet MSL) on a company visual flight rules (VFR) flight plan at about 0705 hours. Witnesses indicate the plateau at the accident site was obscured with low clouds. Consistent with the time of departure of the accident airplane, a Federal Aviation Administration radar NTAP database target was recorded on a track from the Montrose area to the accident site. The recorded radar information indicated that the target climbed to a peak altitude of 15,400 MSL and then disappeared. The airplane was reported overdue and a ground search party located the airplane wreckage about 48 hours later in the vicinity of the last recorded radar position. No emergency locator transmitter signal was received. The wreckage was situated among 70 feet high pine trees with evidence of a steep flight path angle, a rather flat pitch attitude, and little indication of forward speed. There was a fuel spill in the surrounding area but no fire. All of the victims were located within the airplane fuselage.

Probable Cause: The National Transportation Safety Board determines that the probable cause of this accident was the pilot's failure to maintain sufficient airspeed for undetermined reasons while maneuvering the airplane near the maximum gross weight and aft CG in, or near, instrument meteorological conditions, resulting in the loss of control and entry into a stall/spin.

Contributing Factors: Factors contributing to the accident were the pilot's improper in-flight planning and decision-making and his failure to use proper stall/spin recovery techniques.

AIRCRAFT ACCIDENT
98-8E01-O-FWS

AIRCRAFT DATA: PA-18 Supercub	**DATE**: June 22, 1998
BUREAU: U.S. Fish and Wildlife Service	**LOCATION**: Cold Bay, AK
INJURIES: None	**SOURCE**: Fleet

Narrative: On June 22, 1998, about 1213 Alaska Daylight Time, a tundra tire equipped Piper PA-18 airplane, N745, sustained substantial damage during takeoff from a remote area of beach on Unimak Island, about 58 miles southwest of Cold Bay, Alaska. The airplane was being operated as a visual flight rules government flight under Title 14 CFR Part 91, when the accident occurred. The airplane was registered to the Office of Aircraft Services, U.S. Department of the Interior, and operated by the U.S. Fish and Wildlife Service. The certificated commercial pilot, and the sole passenger, were not injured. Visual meteorological conditions prevailed. During a telephone conversation with the National Transportation Safety Board investigator-in-charge, on June 23, 1998, an investigator with the Office of Aircraft Services, Boise, Idaho, reported the pilot was departing a beach area in Urilia Bay, on Unimak Island. The pilot was picking up an Alaska Department of Public Service, Fish and Wildlife Protection Aide from the beach, for transportation to Cold Bay. The aide was conducting surveillance of an Alaskan fishery. In the pilot/operator report (NTSB form 6120.1/2), the pilot stated he began a takeoff roll toward the west, paralleling the shoreline. A crosswind from the southwest, between 12 to 14 knots, was blowing from the beach toward the water. During the takeoff the tail came up slowly, and the airplane veered to the right. The pilot applied left aileron and rudder in an effort to maintain directional control of the airplane. The airplane dropped off the edge of a 5-foot high sand dune, and touched down in an area of hard, wet sand. The airplane ground looped to the right, and came to rest 160 degrees from the original departure heading. The airplane received damage to the left wing, fuselage, and the left horizontal stabilizer.

Probable Cause: The National Transportation Safety Board determines that the probable cause of this accident was the pilot's inadequate compensation for crosswind conditions.

Contributing Factors: The presence of a crosswind was a factor in the accident.

AIRCRAFT ACCIDENT
98-8E02-O-FWS

AIRCRAFT DATA: Piper PA-18	**DATE**: August 21, 1998
BUREAU: U.S. Fish and Wildlife Service	**LOCATION**: Fairbanks, AK
INJURIES: None	**SOURCE**: Fleet

Narrative: On August 21, 1998, about 1500 Alaska Daylight Time, a tundra tire-equipped Piper PA-18 airplane, N74996, sustained substantial damage during an aborted takeoff from a remote airstrip, about 35 miles south of Fairbanks, Alaska. The airplane was being operated as a visual flight rules (VFR) local area flight when the accident occurred. The airplane was operated by the U.S. Fish and Wildlife Service on a public use mission. The certificated commercial pilot, the sole occupant, was not injured. Visual meteorological conditions prevailed. Company VFR flight following procedures were in effect. The flight originated at the Fairbanks International Airport, at 1400. During a telephone conversation with the National Transportation Safety Board investigator-in-charge, the pilot reported he was inspecting a small airstrip used by area hunters. The airstrip is oriented north/south, and is about 600 to 700 feet long. During a landing at the airstrip, the pilot said the wind was from the south at about 18 knots. After the inspection, the pilot prepared to depart to the south. The pilot reported that several trees were located at the south end of the airstrip, and were about 25 feet tall. The pilot began a takeoff, and about halfway down the airstrip, he lowered the flaps. The airplane momentarily became airborne, but it did not climb. The pilot then raised the flaps, and applied heavy braking. The airplane nosed over at the end of the airstrip. The airplane received damage to the propeller, tail assembly, and the fuselage. After the accident the pilot noticed the wind was blowing from the west.

Probable Cause: The National Transportation Safety Board determines that the probable cause of this accident was the pilot's inadequate preflight planning/preparation, and his delay in aborting the takeoff.

Contributing Factors: Factors in the accident were a short runway area for takeoff, trees located at the end of the runway, and the pilot's excessive application of brakes.

Section III
Accident Statistics and Trends - Introduction

This section of the review presents a statistical overview of aviation accidents, incidents, and flight times within the Department of the Interior (DOI). Whenever possible, total flight times and accidents are subdivided into fleet, contract, and rental aircraft. Historical records from previous years are also included for comparison.

The statistics are divided into two major parts. The first reflects DOI accident history and rates from FY 75 to FY 99. Several comparisons are presented using data collected from FY 95 through FY 99. The last section reviews events reported through the SAFECOM reporting system.

All accident rates in this report are based on 100,000 flight hours. They are determined by dividing the number of accidents by the flight hours, then multiplying that number by 100,000. The historical average is determined by dividing the total number of accidents by the total flight hours recorded since FY 75, then multiplying that number by 100,000.

Historical Records from FY 75 to FY 99

In FY 99 the Department of the Interior flew 74,424.7 hours, at a cost of nearly $53.8 million. Despite a demanding fire season, Interior recorded only four statistically accountable aircraft accidents for an annual rate of 5.37 per 100,000 flight hours. One additional accident occurred within Interior, which was associated with an end product contract. Flight hours for end product contracts are not captured by the Office of Aircraft Services and are therefore not included in this year's accident rate.

Graph 1/Table 1	ACCIDENT RATE HISTORY. A comparison of annual and historical accident rates from FY 75 through FY 99.
Graph 2/Table 2	TOTAL FLIGHT HOURS. A comparison of annual flight hours which are subdivided according to the source (Fleet, Rental, and Contract). The historical column reflects cumulative flight times.
Graph 3/Table 3	FATAL ACCIDENT RATE HISTORY. A summary of annual and historical rates from FY 75 through FY 99.
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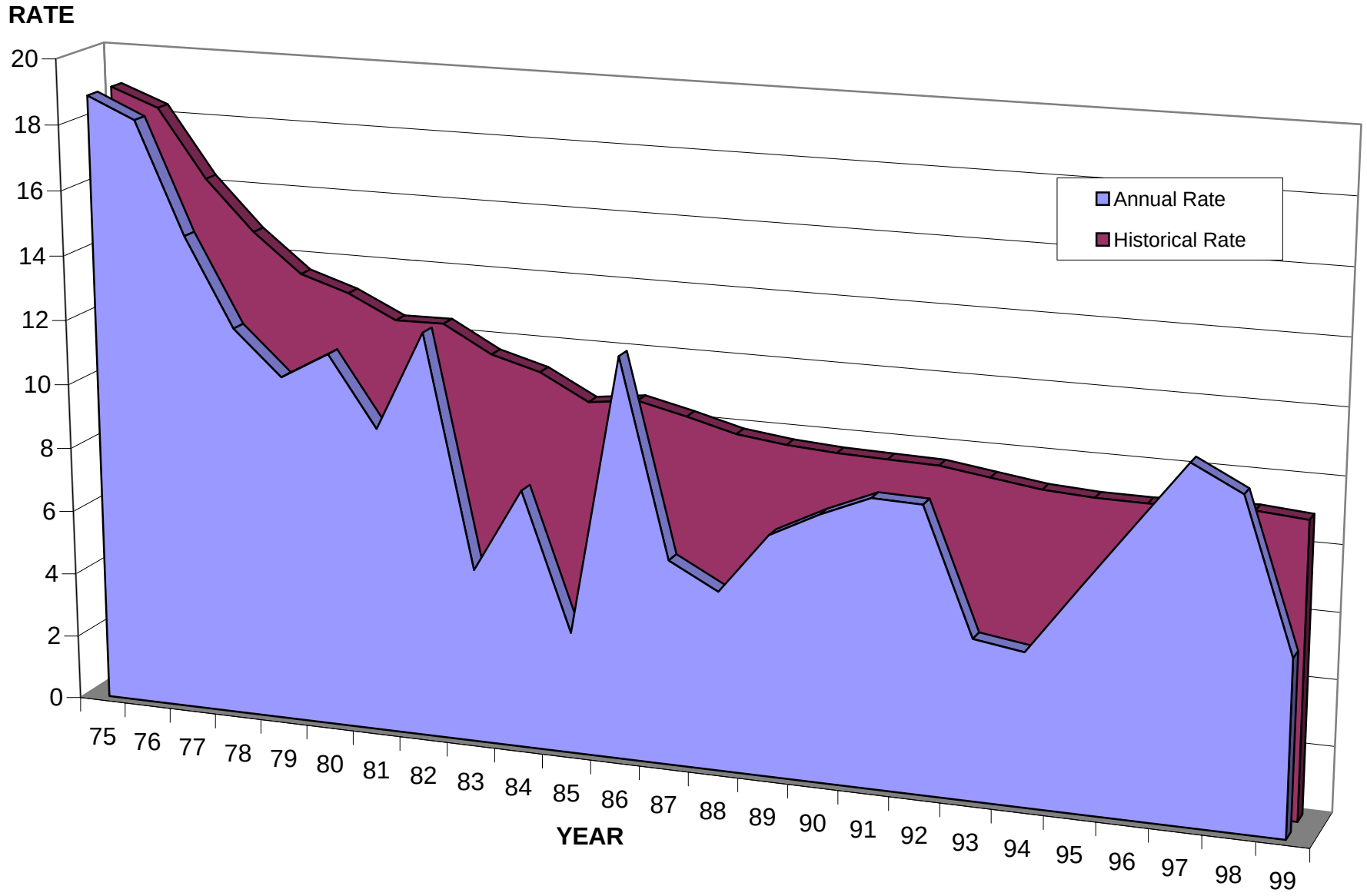
Graph 8	FATAL ACCIDENT COMPARISONS. A comparison of airplane and helicopter fatal accidents and fatal accident rates from FY 95 to FY 99.
Graph 9/Table 9	INVESTIGATION COSTS ASSOCIATED WITH FY 99 ACCIDENTS.
Graph 10/Table 10	INVESTIGATION COSTS ASSOCIATED WITH FY 99 INCIDENTS WITH POTENTIAL

ACCIDENT RATE HISTORY



	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Annual Rate	18.87	18.22	14.81	12.1	10.73	11.57	9.415	12.49	5.36	7.962	3.732	12.3	6.295	5.499	7.374	8.142	8.784	8.745	4.908	4.683	6.722	8.733	10.71	9.946	5.37
Historical Rate	18.87	18.32	16.25	14.73	13.56	13.09	12.39	12.41	11.6	11.19	10.41	10.59	10.25	9.865	9.676	9.578	9.534	9.492	9.284	9.07	8.98	8.97	9.03	9.06	8.94

Graph 1

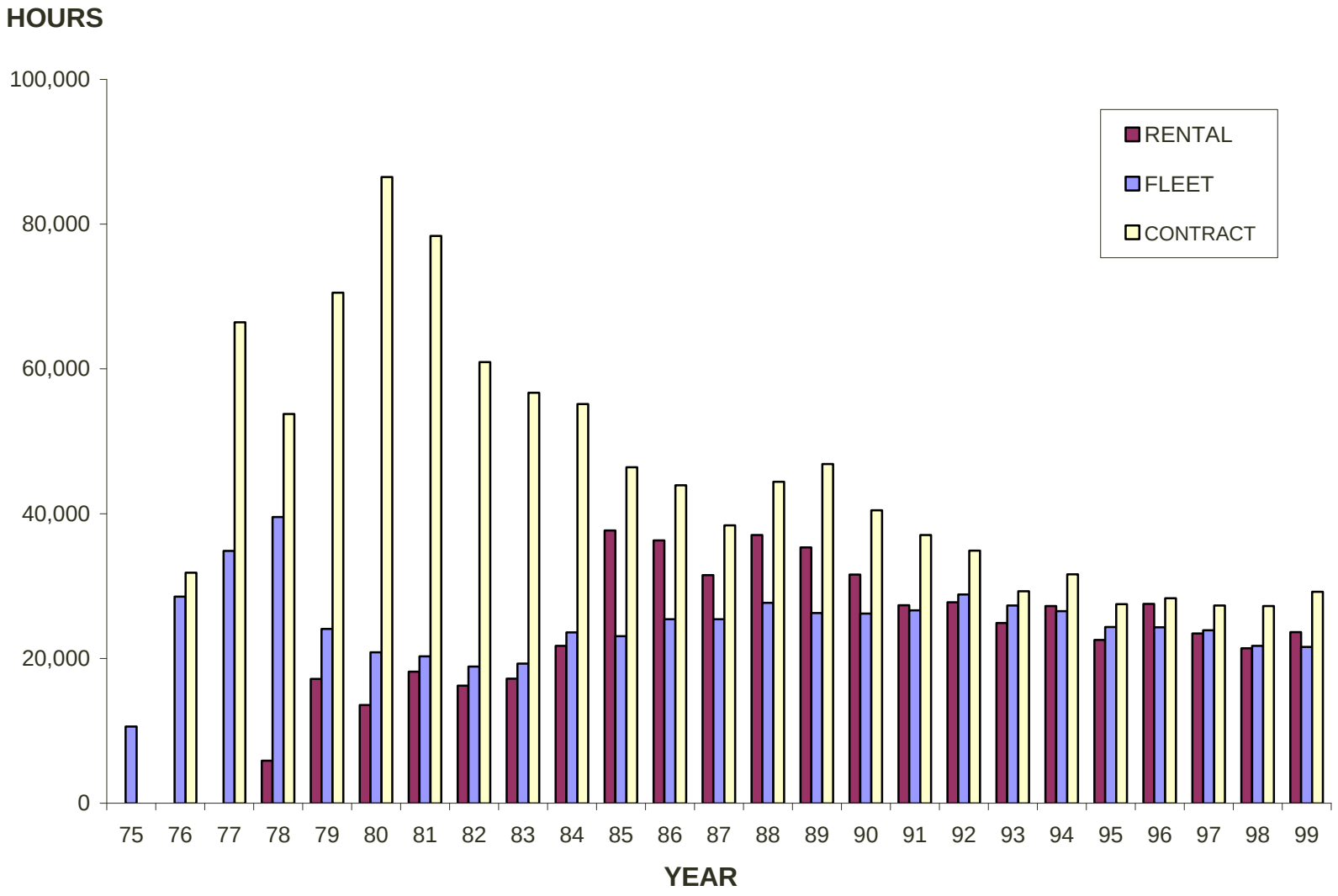
Accident rate per 100,000 flight hours.

ACCIDENT RATE HISTORY

	Rental		Fleet		Contract		Total (Annual)			Total (Historical)		
Year	Accident	Rate	Accident	Rate	Accident	Rate	Accident	Accident *	Rate	Accident	Accident*	Rate
75	0	0.00	2	18.87	n/a**	n/a	2	4	18.87	2	4	18.87
76	0	0.00	3	10.51	8	25.13	11	7	18.22	13	11	18.32
77	0	0.00	4	11.47	11	16.56	15	4	14.81	28	15	16.25
78	0	0.00	4	10.12	8	14.87	12	2	12.10	40	17	14.73
79	1	5.82	3	12.46	8	11.34	12	6	10.73	52	23	13.56
80	0	0.00	6	28.75	8	9.24	14	2	11.57	66	25	13.09
81	1	5.50	1	4.92	9	11.48	11	1	9.41	77	26	12.39
82	1	6.16	6	31.79	5	8.20	12	1	12.49	89	27	12.41
83	1	5.81	0	0.00	4	7.06	5	1	5.36	94	28	11.60
84	2	9.20	1	4.23	5	9.06	8	2	7.96	102	30	11.19
85	1	2.65	1	4.32	2	4.31	4	4	3.73	106	34	10.41
86	2	5.51	4	15.72	7	15.94	13	3	12.30	119	37	10.59
87	0	0.00	3	11.80	3	7.81	6	0	6.29	125	37	10.25
88	3	8.10	2	7.23	1	2.25	6	0	5.50	131	37	9.86
89	3	8.48	2	7.61	3	6.40	8	2	7.37	139	39	9.68
90	5	15.82	1	3.82	2	4.94	8	0	8.14	147	39	9.58
91	6	21.93	2	7.50	0	0.00	8	1	8.78	155	40	9.53
92	0	0.00	8	27.74	0	0.00	8	0	8.74	163	40	9.49
93	2	8.04	1	3.66	1	3.41	4	2	4.91	167	42	9.28
94	1	3.67	2	7.53	1	3.16	4	0	4.68	171	42	9.07
95	3	13.30	1	4.11	1	3.63	5	1	6.72	176	43	8.98
96	2	7.26	4	16.46	1	3.53	7	0	8.73	183	43	8.97
97	2	8.52	4	16.73	2	7.32	8	0	10.71	191	43	9.03
98	2	9.34	2	9.20	3	11.02	7	1	9.95	198	44	9.06
99	1	4.22	1	4.63	2	6.84	4	1	5.37	202	45	8.94
Total	**39**	**7.15**	**68**	**10.97**	**95**	**8.69**	**202**	**45**	**8.94**			

* Indicates non-accountable accidents or non-chargeable accidents.
** Contract flight hours not available in 1975.

TOTAL FLIGHT HOURS



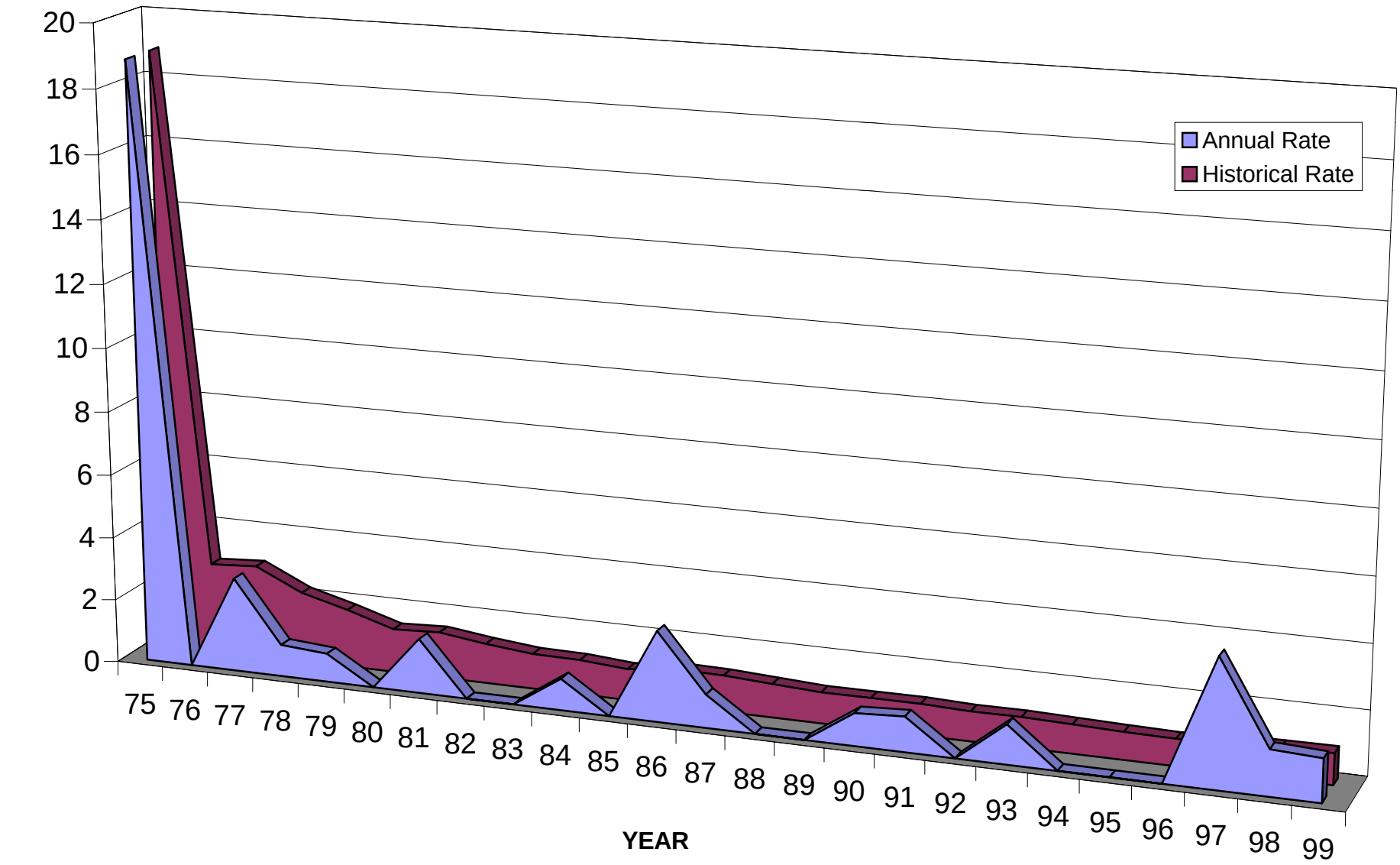
Graph 2

TOTAL FLIGHT HOURS

Year	Rental	Fleet	Contract	Total (Annual)	Total (Historical)
75	0.0	10,598.8	n/a*	10,598.8	10,598.8
76	0.0	28,523.4	31,833.4	60,356.8	70,955.6
77	0.0	34,865.2	66,442.1	101,307.3	172,262.9
78	5,890.0	39,528.1	53,784.9	99,203.0	271,465.9
79	17,180.8	24,072.7	70,528.1	111,781.6	383,247.5
80	13,551.9	20,865.6	86,515.1	120,932.6	504,180.1
81	18,173.0	20,284.4	78,381.5	116,838.9	621,019.0
82	16,223.5	18,876.4	60,953.0	96,052.9	717,071.9
83	17,193.1	19,286.5	56,694.9	93,174.5	810,246.4
84	21,727.4	23,605.8	55,143.1	100,476.3	910,722.7
85	37,686.3	23,095.5	46,396.4	107,178.2	1,017,900.9
86	36,321.0	25,431.7	43,909.8	105,662.5	1,123,563.4
87	31,514.7	25,408.9	38,397.4	95,321.0	1,218,884.4
88	37,036.9	27,667.3	44,401.7	109,105.9	1,327,990.3
89	35,357.9	26,283.9	46,853.0	108,494.8	1,436,485.1
90	31,603.4	26,188.2	40,462.7	98,254.3	1,534,739.4
91	27,360.9	26,660.7	37,051.5	91,073.1	1,625,812.5
92	27,763.2	28,834.8	34,885.9	91,483.9	1,717,296.4
93	24,890.4	27,317.2	29,288.6	81,496.2	1,798,792.6
94	27,240.4	26,533.5	31,640.8	85,414.7	1,884,207.3
95	22,547.1	24,325.7	27,514.6	74,387.4	1,958,594.7
96	27,530.4	24,300.7	28,328.9	80,160.0	2,038,754.7
97	23,462.5	23,895.7	27,313.0	74,671.2	2,113,425.9
98	21,415.8	21,734.9	27,227.2	70,377.9	2,183,803.8
99	23,645.6	21,573.6	29,205.5	74,424.7	2,258,228.5
Total	**545,316.2**	**619,759.2**	**1,093,153.1**	**2,258,228.5**	

* Contract flight hours not available in 1975.

FATAL ACCIDENT RATE HISTORY



	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Annual Rate	18.87	0	2.9613	1	0.8946	0	1.7118	0	0	0.99	0	2.8392	1.04	0	0	1.0178	1.098	0	1.2271	0	0	0	4.01	1.42	1.34
Historical Rate	18.87	2.81	2.9025	2.2102	1.8265	1.38	1.4492	1.2551	1.1108	1.09	0.9824	1.157	1.14	1.0542	0.9746	0.9774	0.9841	0.9317	0.94	0.9022	0.86	0.8338	0.94	0.96	0.97

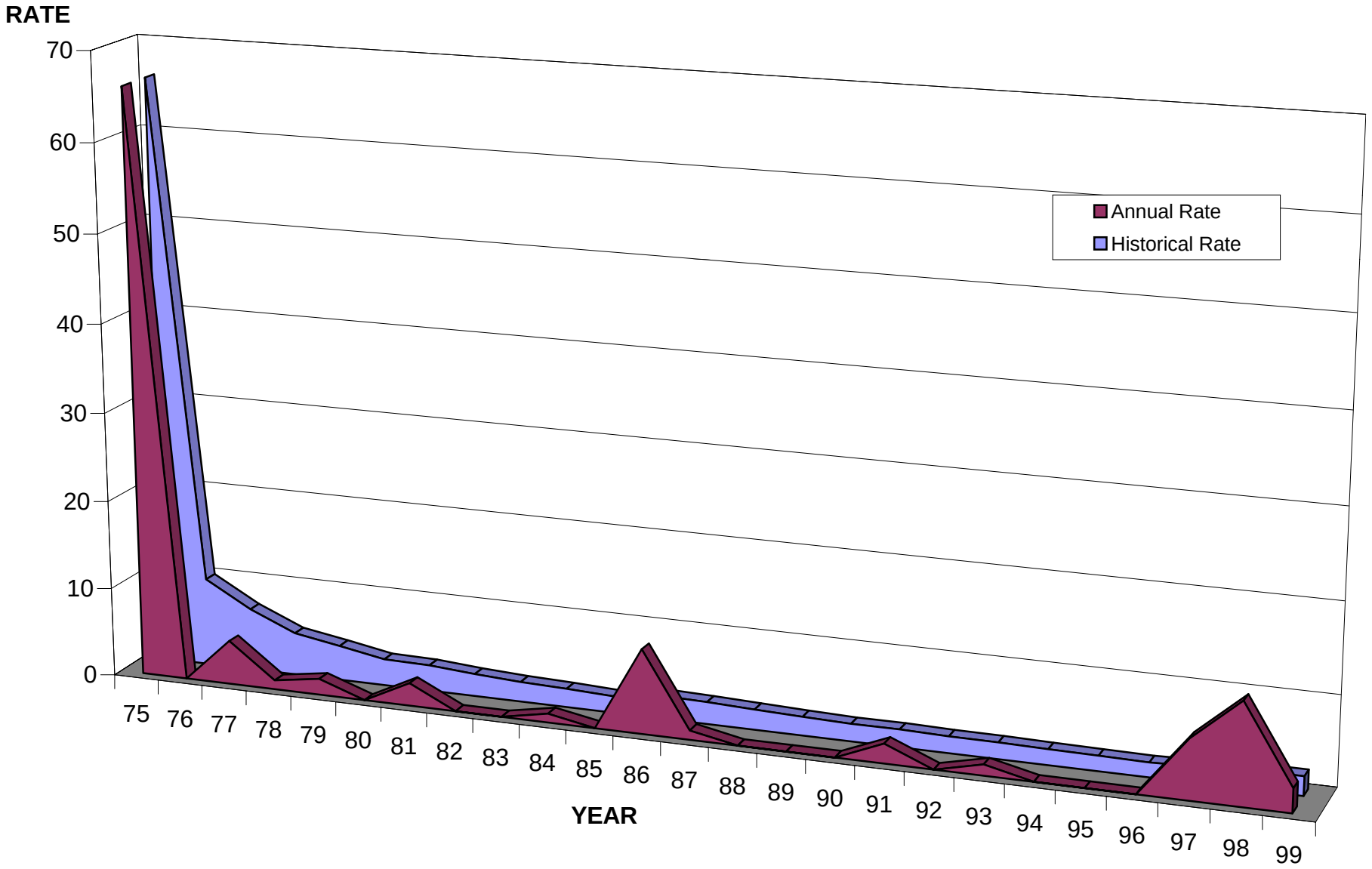
Accident rate per 100,000 flight hours

FATAL ACCIDENT RATE HISTORY

	Rental		Fleet		Contract		Total (Annual)			Total (Historical)		
Year	Accident	Rate	Accident	Rate	Accident	Rate	Accident	Accident *	Rate	Accident	Accident *	Rate
75	0	0.00	2	18.87	0	n/a**	2	1	18.87	2	1	18.87
76	0	0.00	0	0.00	0	0.00	0	3	0.00	2	4	2.81
77	0	0.00	0	0.00	3	4.51	3	0	2.96	5	4	2.90
78	0	0.00	1	2.53	0	0.00	1	1	1.00	6	5	2.21
79	0	0.00	1	4.15	0	0.00	1	0	0.89	7	5	1.83
80	0	0.00	0	0.00	0	0.00	0	2	0.00	7	7	1.38
81	0	0.00	0	0.00	2	2.55	2	0	1.71	9	7	1.45
82	0	0.00	0	0.00	0	0.00	0	0	0.00	9	7	1.26
83	0	0.00	0	0.00	0	0.00	0	0	0.00	9	7	1.11
84	1	4.60	0	0.00	0	0.00	1	1	0.99	10	8	1.09
85	0	0.00	0	0.00	0	0.00	0	1	0.00	10	9	0.98
86	1	2.75	0	0.00	2	4.55	3	0	2.84	13	9	1.16
87	0	0.00	0	0.00	1	2.60	1	0	1.04	14	9	1.14
88	0	0.00	0	0.00	0	0.00	0	0	0.00	14	9	1.05
89	0	0.00	0	0.00	0	0.00	0	0	0.00	14	9	0.97
90	1	3.16	0	0.00	0	0.00	1	0	1.02	15	9	0.98
91	1	3.65	0	0.00	0	0.00	1	0	1.10	16	9	0.98
92	0	0.00	0	0.00	0	0.00	0	0	0.00	16	9	0.93
93	1	4.02	0	0.00	0	0.00	1	2	1.23	17	11	0.94
94	0	0.00	0	0.00	0	0.00	0	0	0.00	17	11	0.90
95	0	0.00	0	0.00	0	0.00	0	1	0.00	17	12	0.86
96	0	0.00	0	0.00	0	0.00	0	0	0.00	17	12	0.83
97	0	0.00	1	4.18	2	7.32	3	0	4.01	20	12	0.94
98	1	4.67	0	0.00	0	0.00	1	0	1.42	21	12	0.96
99	1	4.22	0	0.00	0	0.00	1	0	1.34	22	12	0.97
Total	**7**	**1.28**	**5**	**0.80**	**10**	**0.91**	**22**	**12**	**0.97**			

* Indicates non-accountable accidents or non-chargeable accidents.
** Contract flight hours not available in 1975.

FATALITY RATE HISTORY



	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Annual Rate	66.04	0	4.935	1	1.789	0	2.56	0	0	0.99	0	9.464	1.04	0	0	0	2.196	0	1.227	0	0	0	6.69	11.36	2.68
Historical Rate	66.04	9.865	6.966	4.789	3.914	2.975	2.89	2.51	2.222	2.08	1.86	2.581	2.461	2.259	2.088	1.955	1.968	1.863	1.835	1.751	1.685	1.619	1.798	2.106	2.12

Graph 4

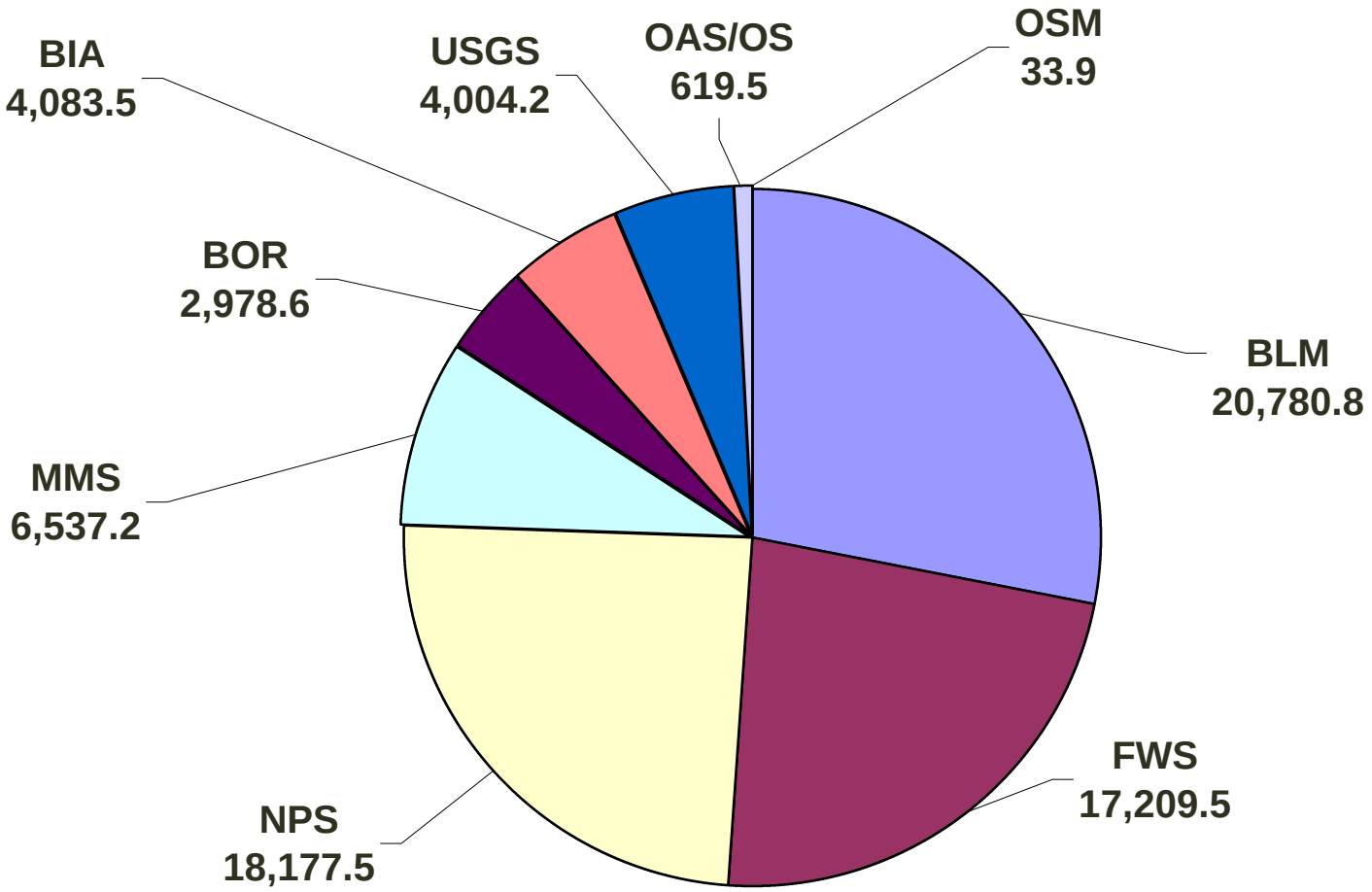
Fatality rate per 100,000 flight hours

FATALITY RATE HISTORY

	Rental		Fleet		Contract		Total (Annual)			Total (Historical)		
Year	**Fatalities**	**Rate**	**Fatalities**	**Rate**	**Fatalities**	**Rate**	**Fatalities**	**Fatalities***	**Rate**	**Fatalities**	**Fatalities***	**Rate**
75	0	0.00	7	66.04	0	n/a*	7	3	66.04	7	3	66.04
76	0	0.00	0	0.00	0	0.00	0	13	0.00	7	16	9.87
77	0	0.00	0	0.00	5	7.52	5	0	4.94	12	16	6.97
78	0	0.00	1	2.53	0	0.00	1	1	1.00	13	17	4.79
79	0	0.00	2	8.31	0	0.00	2	0	1.79	15	17	3.91
80	0	0.00	0	0.00	0	0.00	0	5	0.00	15	22	2.98
81	0	0.00	0	0.00	3	3.82	3	2	2.56	18	24	2.89
82	0	0.00	0	0.00	0	0.00	0	0	0.00	18	24	2.51
83	0	0.00	0	0.00	0	0.00	0	0	0.00	18	24	2.22
84	1	4.60	0	0.00	0	0.00	1	2	0.99	19	26	2.08
85	0	0.00	0	0.00	0	0.00	0	1	0.00	19	27	1.86
86	4	11.01	0	0.00	6	13.66	10	4	9.46	29	31	2.58
87	0	0.00	0	0.00	1	2.60	1	1	1.04	30	32	2.46
88	0	0.00	0	0.00	0	0.00	0	0	0.00	30	32	2.26
89	0	0.00	0	0.00	0	0.00	0	0	0.00	30	32	2.09
90	0	0.00	0	0.00	0	0.00	0	1	0.00	30	33	1.95
91	2	7.31	0	0.00	0	0.00	2	1	2.20	32	34	1.97
92	0	0.00	0	0.00	0	0.00	0	0	0.00	32	34	1.86
93	1	4.02	0	0.00	0	0.00	1	4	1.23	33	38	1.83
94	0	0.00	0	0.00	0	0.00	0	0	0.00	33	38	1.75
95	0	0.00	0	0.00	0	0.00	0	1	0.00	33	39	1.68
96	0	0.00	0	0.00	0	0.00	0	0	0.00	33	39	1.62
97	0	0.00	1	4.18	4	14.65	5	2	6.69	38	41	1.80
98	8	37.36	0	0.00	0	0.00	8	1	11.36	46	42	2.11
99	2	8.45	0	0.00	0	0.00	2	0	2.68	48	42	2.12
Total	**18**	**3.30**	**11**	**1.77**	**19**	**1.73**	**48**	**42**	**2.12**			

* Non-DOI fatalities associated with DOI aircraft accidents.
** Contract flight hours not available in 1975.

BUREAU FLIGHT HOURS
FY 99



Total flight hours - 74,424.7

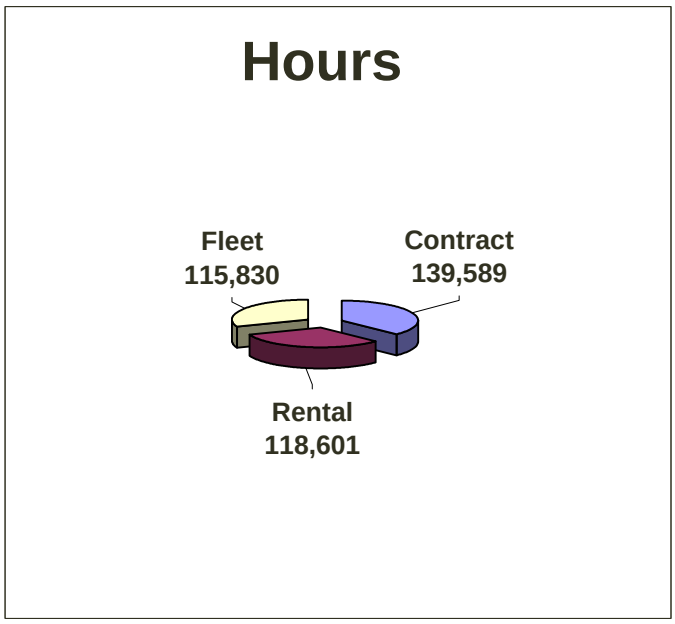
BUREAU STATISTICS

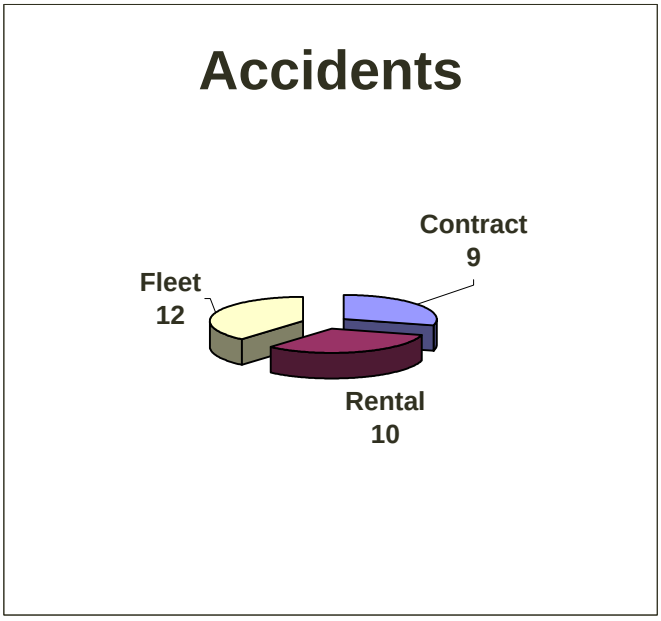
5 YEAR HISTORY

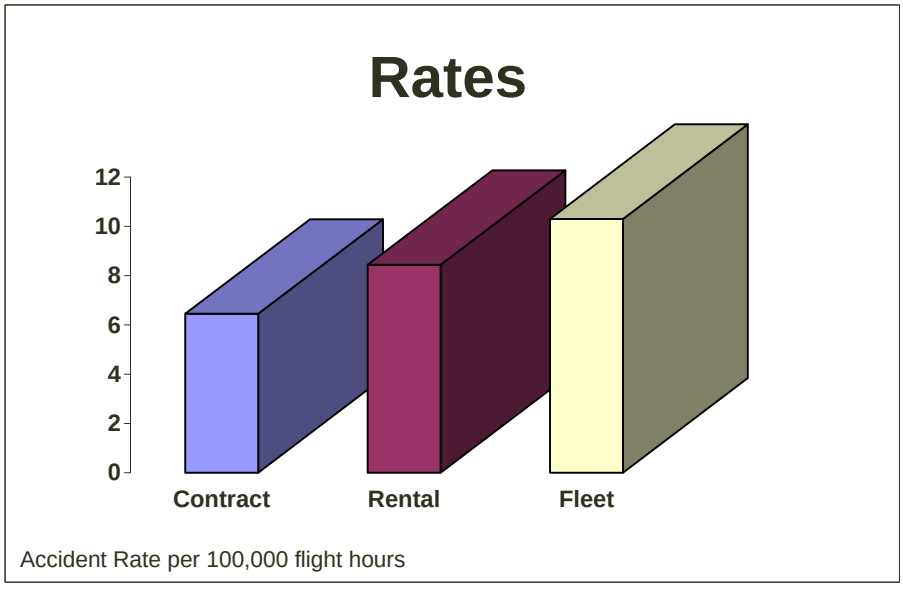
Bureau	Statistic	FY 95	FY 96	FY 97	FY 98	FY 99	TOTAL
BLM	Hours	18,240.0	26,248.6	21,688.0	17,959.0	20,780.8	104,916.4
	Accidents	1	0	2	3(1)	2(1)	7(2)
	Rate	5.5	0.0	9.2	16.7	9.6	6.3
FWS	Hours	18,739.5	16,255.0	17,504.7	18,315.9	17,209.5	88,024.6
	Accidents	0	1	2	2	1	7
	Rate	0.0	6.2	11.4	10.9	5.8	7.6
NPS	Hours	17,904.6	17,998.3	17,419.6	16,742.3	18,177.5	88,242.3
	Accidents	3	3	2	0	0	8
	Rate	16.8	16.7	11.5	0.0	0.0	9.1
MMS	Hours	6,313.1	6,073.0	6,131.5	6,399.1	6,537.2	31,453.9
	Accidents	0	0	0	0	0	0
	Rate	0.0	0.0	0.0	0.0	0.0	0.0
BOR	Hours	3,171.3	3,058.9	3,045.6	2,626.0	2,978.6	14,880.4
	Accidents	0	0	0	1	0	1
	Rate	0.0	0.0	0.0	38.1	0.0	6.4
BIA	Hours	5,075.4	5,489.3	3,721.8	3,145.8	4,083.5	21,515.8
	Accidents	(1)	1	1	1	0	3 (1)
	Rate	0.0	18.2	26.9	31.8	0.0	12.9
USGS	Hours	3,775.2	4,357.0	4,571.4	4,629.3	4,004.2	21,337.1
	Accidents	1	2	1	0	0	4
	Rate	26.5	45.9	21.8	0.0	0.0	18.8
OAS/OS	Hours	966.0	656.6	539.3	470.6	619.5	3,252.0
	Accidents	0	0	0	0	1	1
	Rate	0.0	0.0	0.0	0.0	161.4	30.8
OSM	Hours	238.3	23.3	49.3	89.9	33.9	434.7
	Accidents	0	0	0	0	0	0
	Rate	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	Hours	74,423.4	80,160.0	74,671.2	70,377.9	74,424.7	374,057.2
	Accidents	5(1)	7	8	7(1)	4(1)	31(3)
	Rate	6.7	8.7	10.7	9.9	5.3	8.0

( ) Indicates non-accountable accidents or non-chargeable accidents.

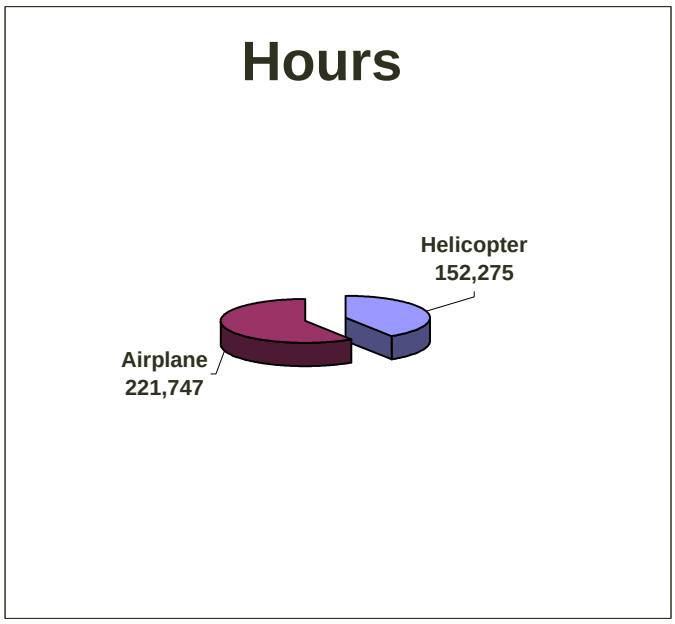
SOURCE COMPARISONS
FY 95 - FY 99

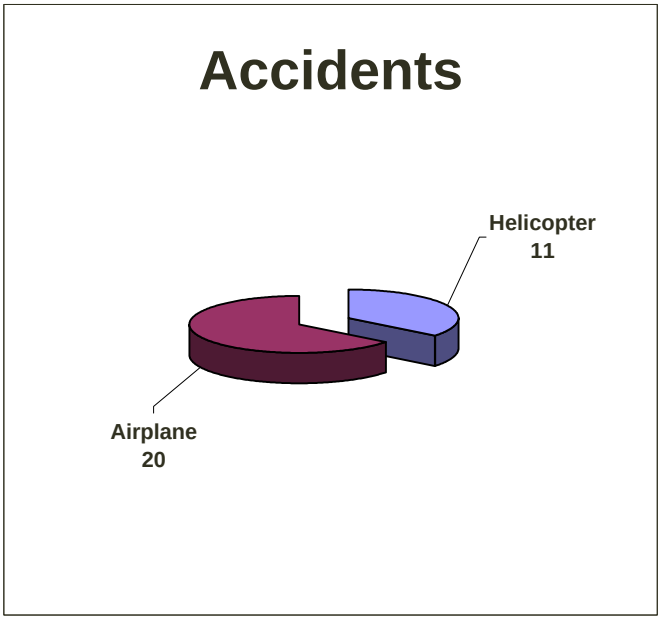


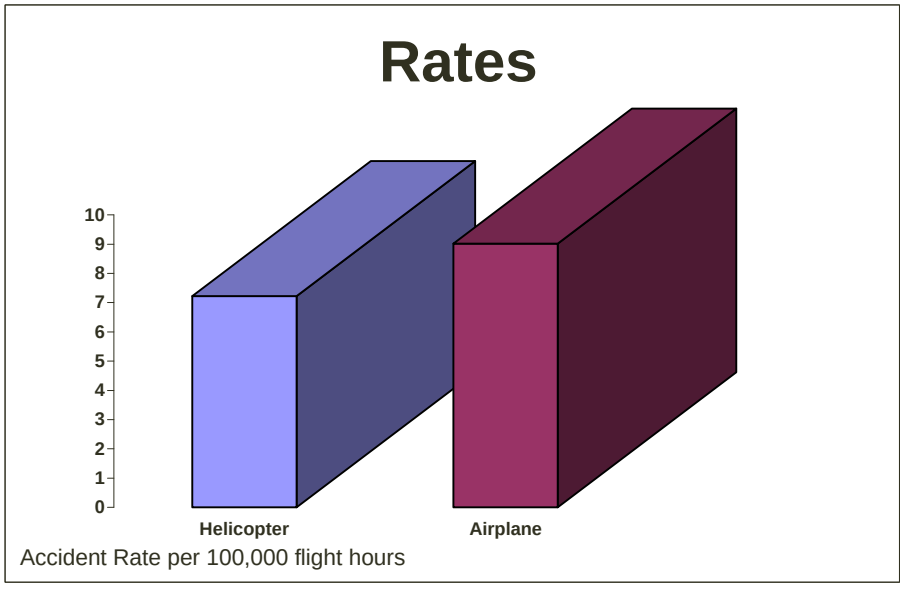




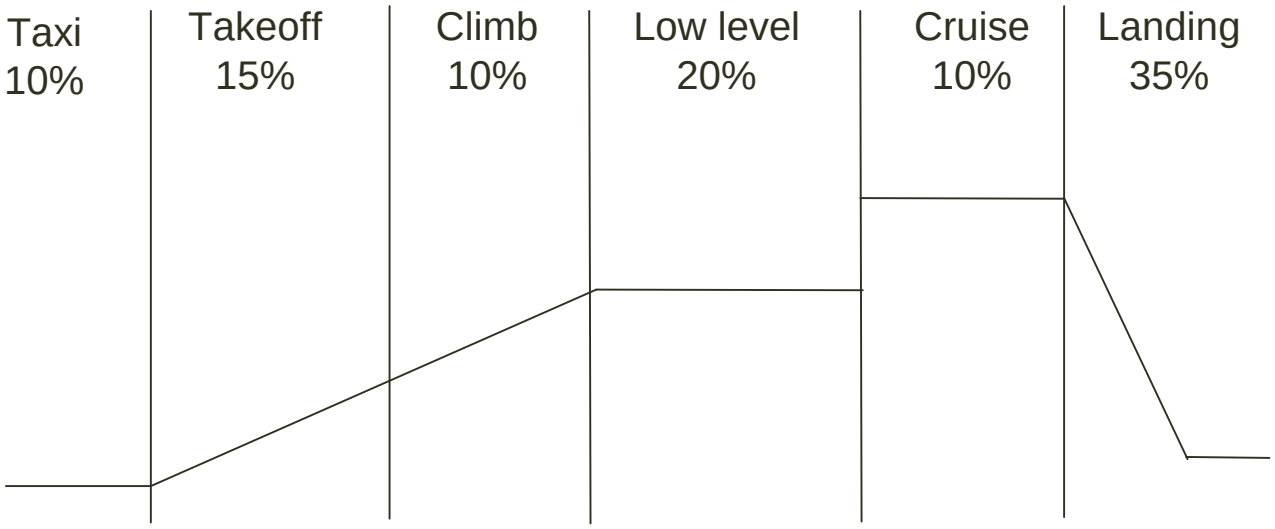
AIRCRAFT COMPARISONS
FY 95 - FY 99

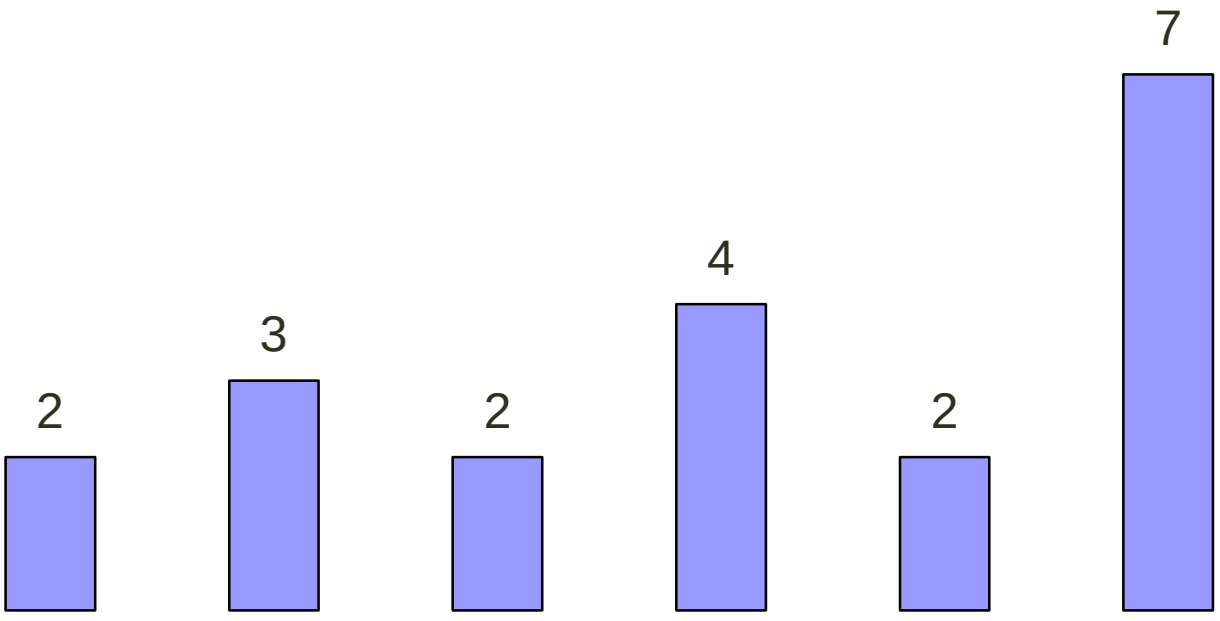






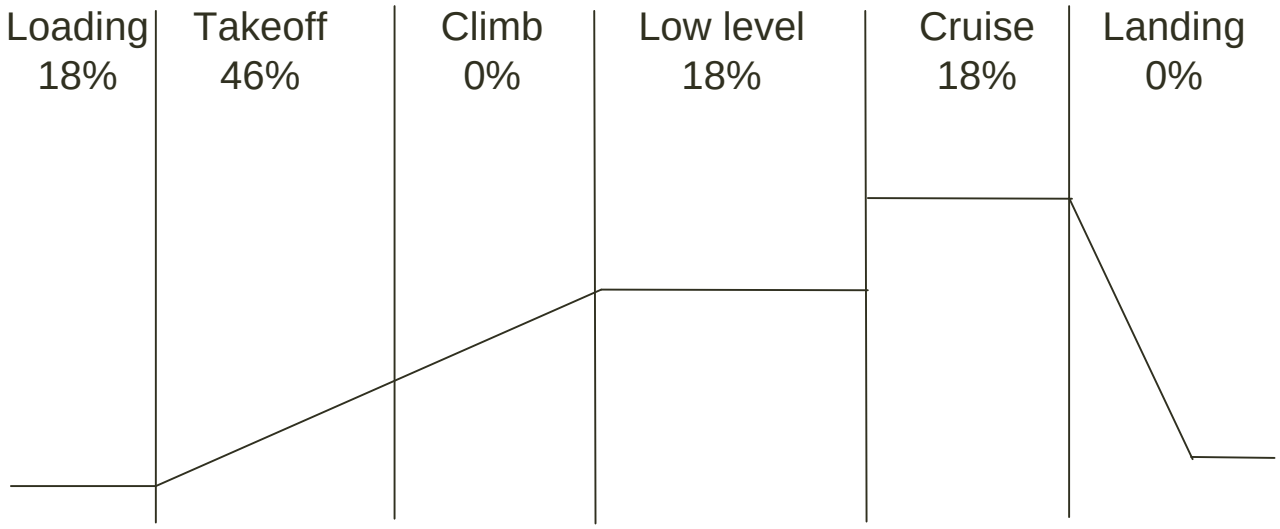
Airplane Phase of Flight Comparisons FY 95 - FY 99

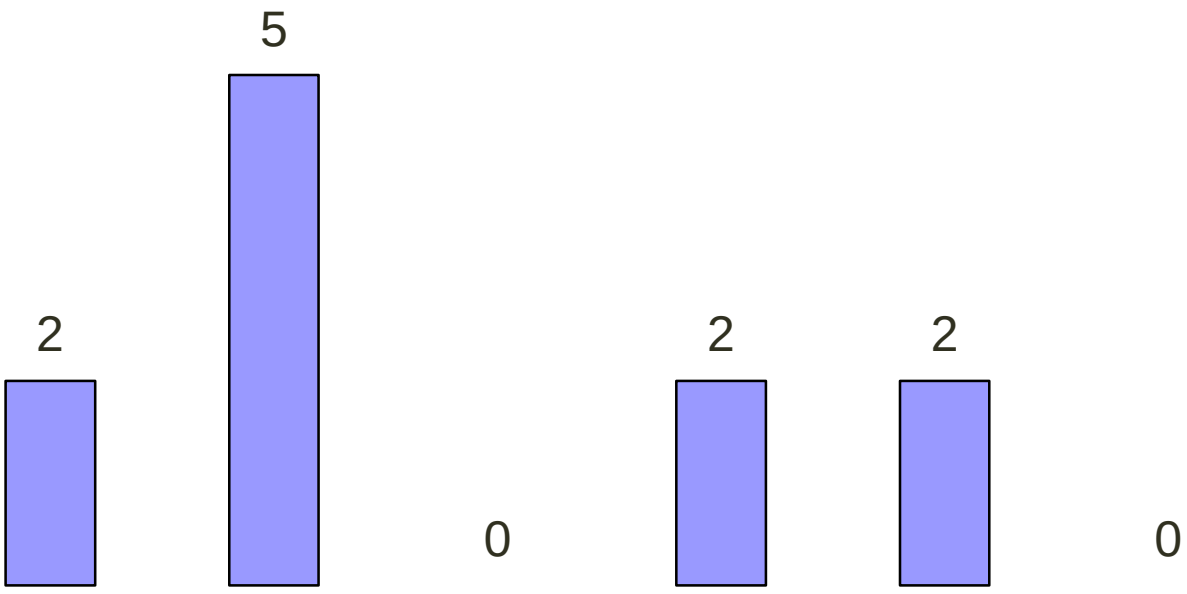




Number of airplane accidents per phase of flight

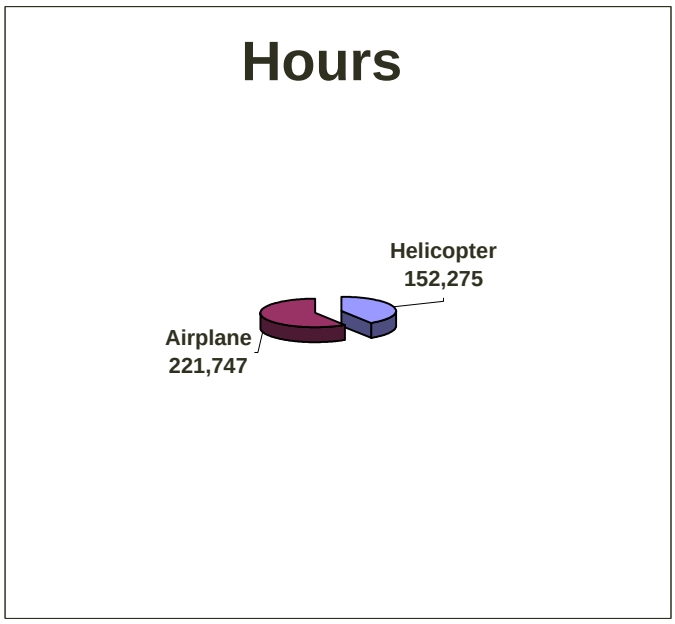
Helicopter Phase of Flight Comparisons FY 95 - FY 99

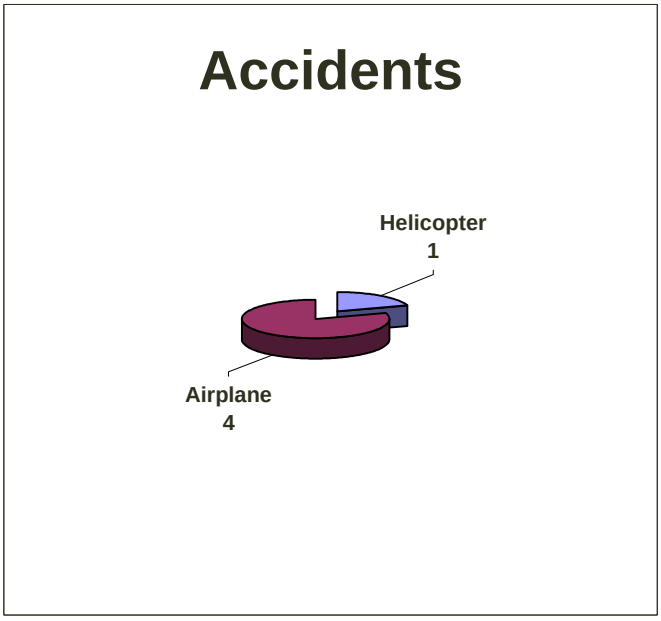


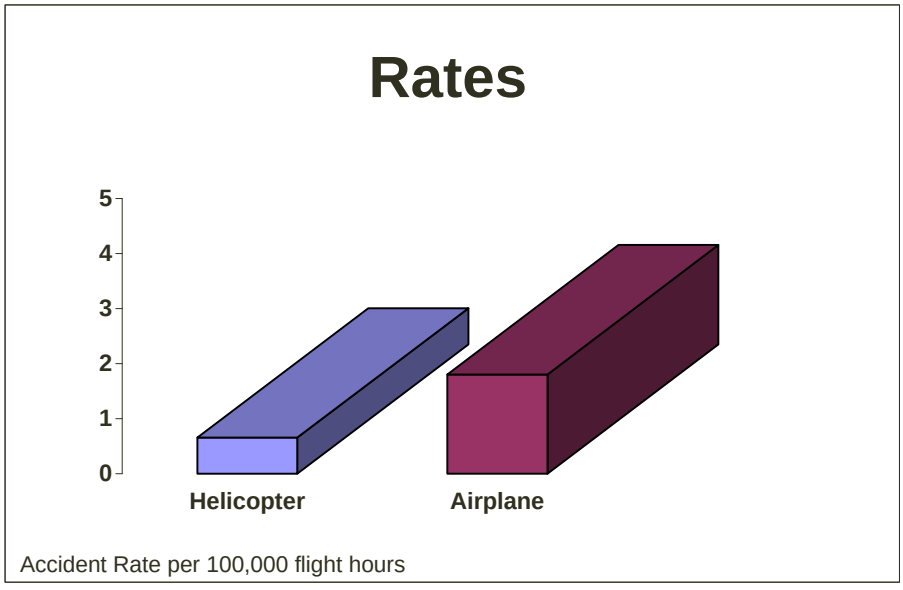


Number of helicopter accidents per phase of flight

FATAL ACCIDENT COMPARISONS
FY 95 - FY 99

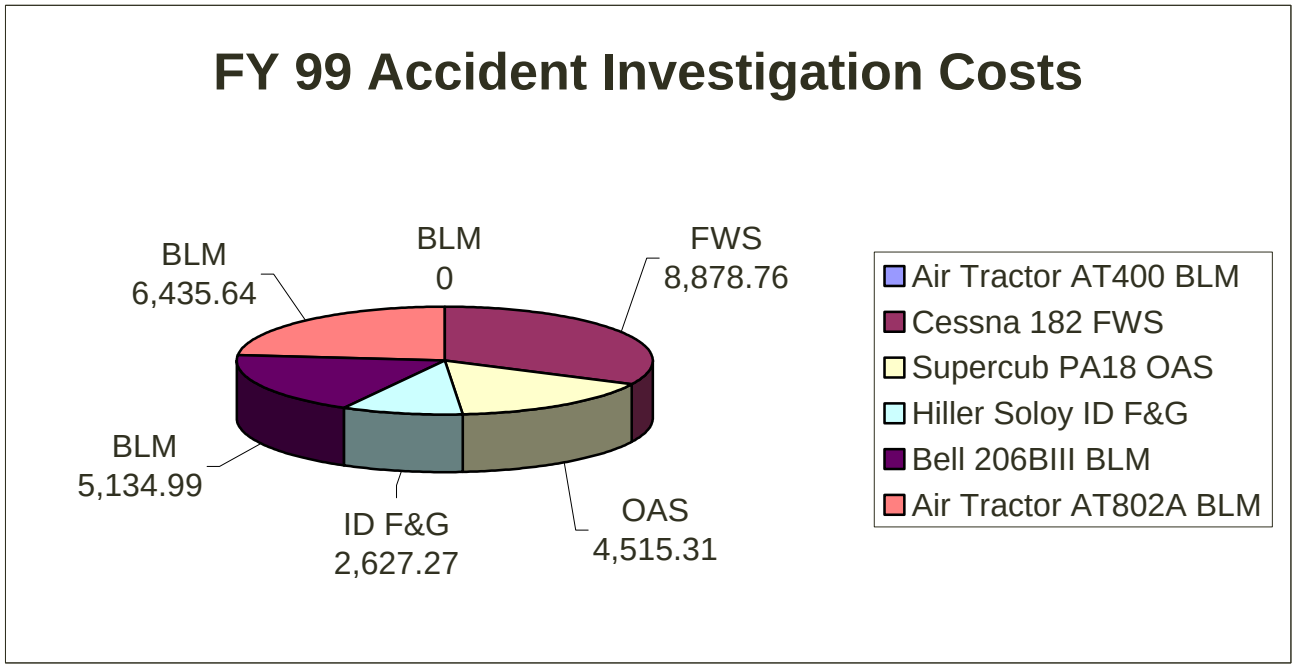






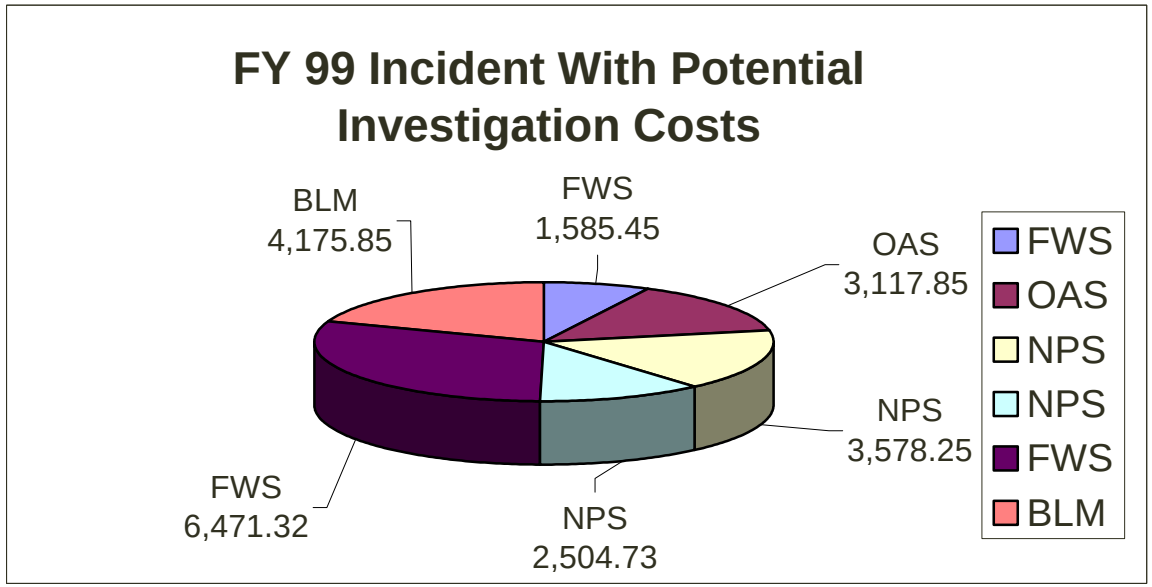
FY 99 Accident Investigation Costs Captured by OAS

Date	Number	Location	Aircraft Type	Bureau	Costs
10/19/98	99-9F01-C-LLM	Aztec, NM	Air Tractor AT400	BLM	0
11/6/98	99-9F02-A-FWS	Desert Aire, WA	Cessna 182	FWS	8,878.76
2/3/99	99-9E01-O-PAS	Anchorage, AK	Supercub PA18	OAS	4,515.31
2/28/99	99-9F03-N-IFG	Yellow Pine, ID	Hiller Soloy	ID F&G	2,627.27
7/8/99	99-9E02-C-LLM	Deadhorse, AK	Bell 206BIII	BLM	5,134.99
8/19/99	99-9F04-C-LLM	Elko, NV	Air Tractor AT802A	BLM	6,435.64



FY 99 Incident With Potential Investigation Costs Captured by OAS

Date	Number	Location	Aircraft Type	Bureau	Costs
11/2/98	99-9N001-O-FWS	Westminster, MD	Cessna 206	FWS	1,585.45
1/14/99	99-9N002-A-PAS	Caldwell, ID	Cessna 210	OAS	3,117.85
3/10/99	99-9M001-O-FNP	Kantishna, AK	Cessna 185	NPS	3,578.25
5/12/99	99-9N003-C-FNP	Big Cypress, FL	Bell 206BIII	NPS	2,504.73
6/23/99	99-9M003-O-FWS	Fairbanks, AK	Cessna 185	FWS	6,471.32
8/19/99	99-9N004-O-LLM	Battle Mtn., NV	DHC-6 Twin Otter	BLM	4,175.85
8/21/99	99-9N005-A-LLM	Fish Crk, NV	Bell 212	BLM	see 99-9F04
8/24/99	99-9N006-C-LLM	Denio Airstrip, NV	PZL Dromader	BLM	see 99-9F04



Section IV

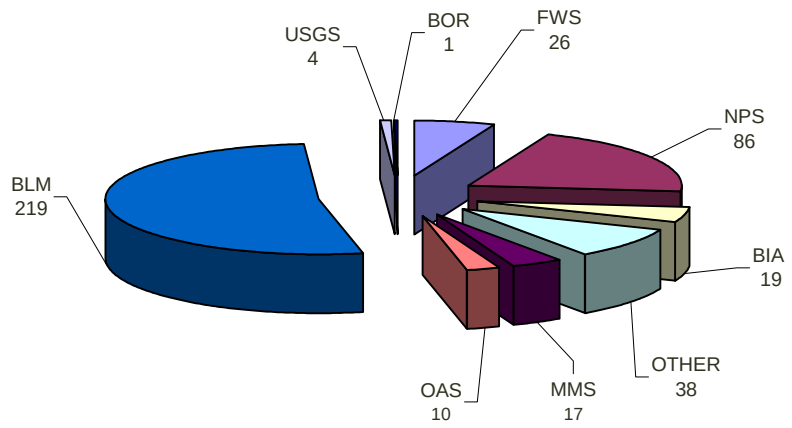
SAFECOM Reporting

The Department's SAFECOM reporting system is a voluntary incident reporting program designed to identify and eliminate aviation hazards. This program is established in 352 DM 1, *Aviation Safety Program*. While information submitted through this program is shared and acted upon in the interest of accident prevention, every effort is taken to maintain confidentiality. Any person directly associated with DOI aviation activities is encouraged to notify OAS of any issues affecting aviation safety within Interior. SAFECOM reports may be submitted via the OAS website at www.oas.gov.

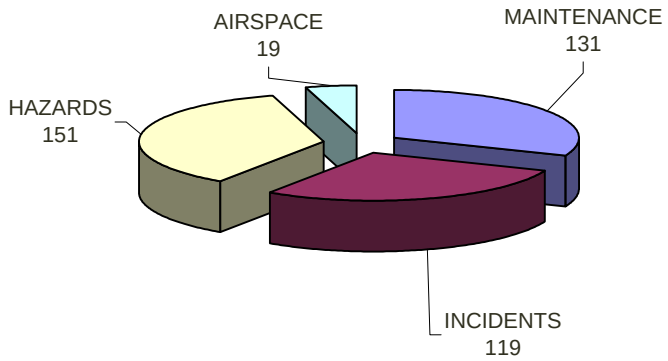
The OAS Aviation Safety Office received a total of 420 SAFECOM reports in FY 99. The subtotals of the FY 99 reports were: 119 aircraft incidents, 19 airspace conflicts, 151 aviation hazards, and 131 aircraft maintenance deficiencies.

SAFECOM SUMMARY
FY 99

BUREAU

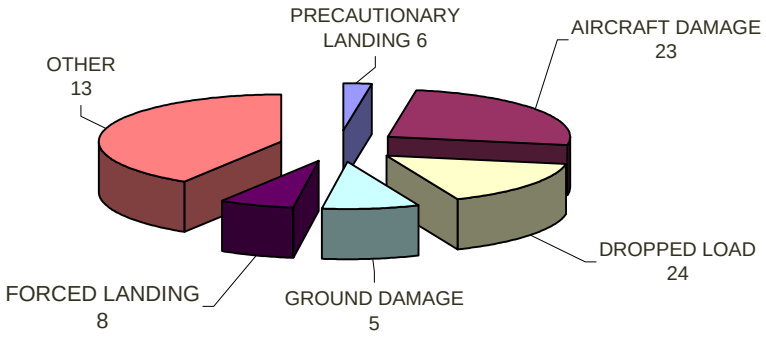


CATEGORY

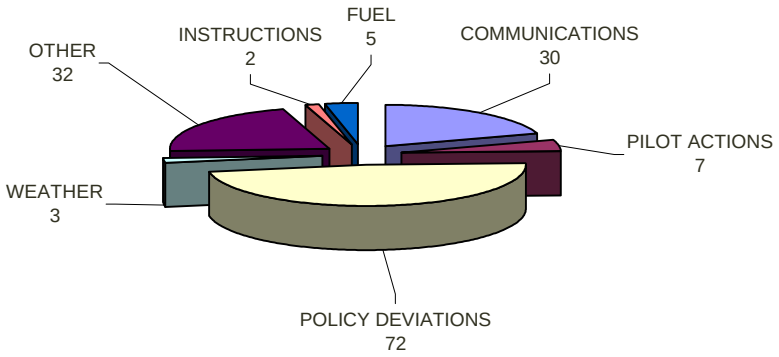


SAFECOM SUMMARY
FY 99

INCIDENT

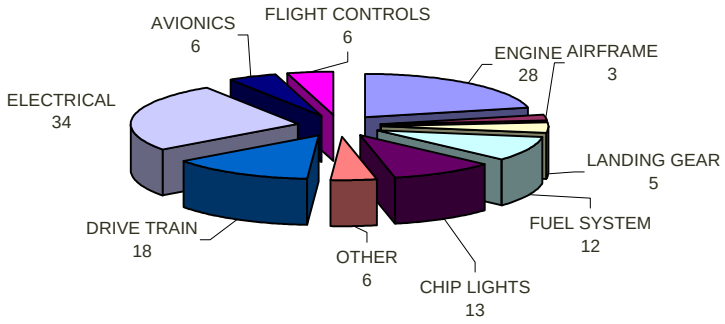


HAZARD

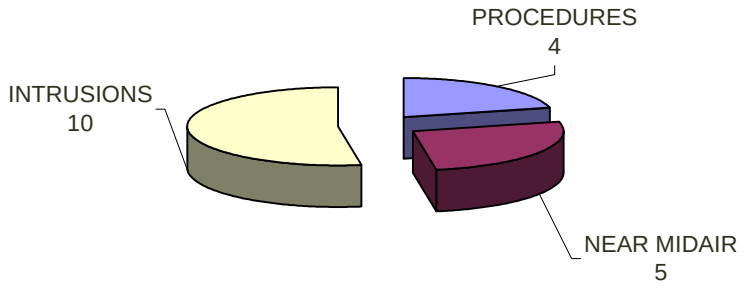


SAFECOM SUMMARY
FY 99

MAINTENANCE



AIRSPACE



GLOSSARY

Aircraft accident. An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Aircraft incident. An occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

Airspace conflict. A near midair collision, intrusion, or violation of airspace rules.

Aviation hazard. Any condition, act, or set of circumstances that exposes an individual to unnecessary risk or harm during aviation operations.

Fatal injury. Any injury which results in death within 30 days of the accident.

Forced landing. A landing necessitated by failure of engines, systems, or components which makes continued flight impossible, and which may or may not result in damage.

Incident with potential. An incident that narrowly misses being an accident and in which the circumstances indicate significant potential for substantial damage or serious injury. Final classification will be determined by the OAS Aviation Safety Manager.

Maintenance deficiency. An equipment defect or failure which affects or could affect the safety of operations, or that causes an interruption to the services being performed.

Non-chargeable accidents. Accidents in which DOI was not exercising operational control over the aircraft at the time of the accident but in which DOI employees or DOI-procured aircraft were involved.

Operator. Any person who causes or authorizes the operation of an aircraft, such as the owner, leasee, or bailee of an aircraft.

Precautionary landing. A landing necessitated by apparent impending failure of engines, systems, or components which makes continued flight unadvisable.

Serious injury. Any injury which: (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second-or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Glossary

Substantial damage. Damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wing tips are not considered "substantial damage" for the purpose of 49 CFR Part 830.